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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/675,943
Filing Date: October 02, 2003
Appellant(s): SHAKED ET AL.

Timothy Kang
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/10/2009 appealing from the Office action mailed 2/9/2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Dynamic range compression based on illumination compensation" IEEE Trans. on Consumer Electronics Vol. 47 pp 548-558 August 2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Rejections Under 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Ogata et al "Dynamic range compression based on illumination compensation" *IEEE Trans. on Consumer Electronics* Vol. 47 pp 548-558 August 2001.

Re claim 1 Ortata discloses A computer program for processing a color image, said computer program being embodied in a computer readable medium comprising: code to receive an image to receive the color image (page 282 first column last paragraph); code for retinex type procession comprising for cascaded recursive filtering (page 282 first column last paragraph-page 283 first column first paragraph) wherein the code for cascaded recursive filtering comprises code for infinite impulse response filtering (page 282 first column last paragraph-page 283 first column first paragraph), code for correcting pixels of the input image according to corresponding pixel values in the local statistics processor (page 283 first column paragraph 2 page 283 first column Results); and code for to transform the corrected pixels into an output signal that is indexed to

represent an intensity of a particular position in the color image (page 283 first column Results).

(10) Response to Argument

Applicants arguments on page 11 state

> "Independent claim 1 recites that the code for Retinex-type processing includes code for cascaded recursive filtering, which includes code for infinite impulse response (IIR) filtering. IIR filtering is a recursive operation applied pixel by pixel in a particular order (usually raster). One result of which is that IIR filtering results in different outputs when applied on an image and a flipped or rotated version of the image."
>
> In setting forth the rejection of independent claim 1, the Examiner asserts that Ogata discloses code for retinex type processing including cascaded recursive filtering, which includes code for infinite impulse response filtering. Final Office Action, page 2, last three lines-page 3, line 2. This assertion, however, is inaccurate because the recursive operations discussed in Ogata relate to recursion between scales. More particularly, Ogata discloses that a description of an attenuation function M at some scale k is dependent on the result of the same attenuation function M in a previous scale (k-l) and of the output image at scale (k). As such, use of the recursive operations disclosed in Ogata on an image and a flipped version of that image will result in an output of the flipped or rotated version being a flipped or rotated version of the output of the image. Thus, the outputs of the image and the flipped or rotated version of the image will be similar to each other, which differs from the outputs of the image and the flipped or rotated version of the image when the IIR filtering of independent claim 1 is implemented.

The examiner agrees that IIR filtering is typically a recursive filter, and in images is often applied pixel by pixel in a particular order. However none of these features are specifically required by an IIR filter. Further more while an IIR filter usually has a different output when applied to a flipped or rotated image this is also not necessary to be a IIR filter. The examiner disagrees with applicant's argument that an IIR filter must produce different results when a flipped or rotated (i.e. if a flipped image is input to the filter the output would be different then flipped version of a non flipped output).

All that is required to produce an IIR filter is to produce an infinite impulse response that is the response of the filter to an impulse input is infinite in length (i.e. is non-zero to infinity). It can easily be seen that the filter in equation one has this property. The input signal to the filter is $L_k(x,y)$. An impulse function is defined as $L_k(x,y)$ = {0 if K<0, 1 if K=0 and 0 if K>0}. If the filter of equation is applied to L_k from –inf to inf. M_k =0 for k<0 and M_k=w(x,y)*1 for K=0. From this sample on $L_k(x,y)$ =0 so M_k =(1-w(x,y))* M_{k-1}) since M_0 is not 0 $M_k \neq 0$ for k<0. Threfore this is an infinite impulse response filter.

Applicant has essentially argued that this cannot be an IIR filter because it is not applied in the X or Y direction. Ortega produces a multiple scale version of the original image and applies a recursive IIR filter across the multiple scales in the scale direction. The examiner disagrees because IIR filters can by applied in any direction for example time in video, depth in a 3-d image or as in Ortega case across scaled versions of the image.

However even if the examiner were to accept applicants premise that an IIR filter must have such a “flipping” property, The filter in Ortega does have such a property. Applicant has only considered filtering in the x and/or y direction; while Ortega filters in K or (scale) direction. Ortega produces a multiple scale version of the original image and applies a recursive IIR filter across the multiple scales in the scale direction. Therefore the proper “flipped” version of the image to test this property is not a image that is flipped in the x or y direction but is flipped in the scale direction which is the direction of the filter. That is if the filter is applied from lowest to highest scale or highest

to lowest scale. Applicants have provided no evidence that such a flipping in the scale direction would not affect the output.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Sean Motsinger/

Conferees:

/Bhavesh M Mehta/

Supervisory Patent Examiner, Art Unit 2624

/VIKKRAM BALI/

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